BMAC Preliminary gamma Screening Report Q and A

6/26/14

1. What does the report conclude about the condition of the fields at BMAC?

The report reinforces EPA's position that the fields remain suitable for public use. EPA's gamma screening assessment did not reveal any areas of unusual or elevated gamma activity.

2. Why is the report titled "preliminary"?

The report is considered preliminary because it is limited to the gamma screening level data and does not contain the laboratory data for the soil samples that were collected from BMAC.

3. When will the lab data be available? Will a "final" report be issued?

Lab data is currently undergoing quality assurance review by trained, professional scientists. A final report containing the lab data is expected to be released in July 2014.

4. What does the report say about thorium?

This report contains the results of the gamma screening assessment which measured gross gamma readings and does not distinguish the various radionuclides. Thorium is not a gamma emitter. The final report expected in July will contain the lab data that will include analysis of thorium, radium, and uranium.

5. Why were Koch and Blanchette Parks selected as reference locations?

These parks were selected based on the following factors:

   a. *similar surface materials and use - both are baseball fields with a combination of grassy areas and exposed soil areas*
   b. *proximity to BMAC – both parks are about 3-4 miles from BMAC*
   c. *location relative to prevailing wind direction – Koch Park is generally cross or down-wind and Blanchette Park is generally upwind of BMAC.*

6. Why did the data have to be "normalized"? What does this mean?

Normalizing the data was necessary because 3 sets of equipment were used to conduct the screening survey. Each instrument will respond slightly differently to the same gamma activity, so it is necessary to normalize the readings in order to properly compare results from all instruments. Normalization is

necessary to put the readings from each instrument on the same basis (apples to apples). EPA staff perform this as a matter of routine practice in conducting this type of assessment where multiple instruments are used. The process and calculations were reviewed by an expert statistician.

7. What benchmark does EPA use to determine if further action is needed?

The gamma screening results from BMAC did not exceed or even approach 2 times background, so the BMAC results are well below a level that would prompt further investigation.

A level of 2 times background is a general guideline used by EPA in gamma screening surveys to determine whether further investigation is needed.

Also, a level of 3 times background is used by EPA to establish whether an observed release has occurred which may warrant further investigation or action. This is a documented practice in the HRS Rules found at Federal Register Vo. 55 No. 241 Soil Exposure Pathway, Table 2-3 – Observed Release Criteria for Chemical Analysis. In addition, EPA's Emergency Response Air Monitoring Guide relies upon the 3 times background level to determine whether response action is needed.

8. What are all those blue dots that appear to be concentrated in certain areas on Figure 4? Do these indicate areas of elevated gamma activity?

The blue dots indicate areas where the gamma readings were higher than other areas (green dots), but not high enough to exceed or even approach a level that is 2 times background. Areas where there are clusters of blue dots are areas where fill material was brought in, so the elevated levels of gamma activity relate to the differences in soil types, and do not indicate levels of concern.

9. Figures 4 and 5 do not show many blue dots for Koch and Blanchette parks? Why?

The blue dots at BMAC are related to differences in soil types. The soil at Koch and Blanchette parks was more uniform so EPA's equipment did not detect much variability in gamma activity because there was not much variability in the soil type.

10. On Tables 1 and 2 in the report, why are the "lows" for BMAC so much lower than the readings from Koch and Blanchette Parks, and why are the "highs" for BMAC generally higher than the readings from Koch and Blanchette?

The lows are lower at BMAC because the areas surveyed included some areas that were covered by materials such as asphalt that serve to mask gamma activity, so these areas of very low readings are averaged into the total data set. The areas surveyed at Koch and Blanchette were only open grassy areas and open soil areas with no coverings that would shield the gamma activity.

The highs are only slightly higher at BMAC because we collected so many more data points and because BMAC has more variability in soil types and amendments.

11. Why do fields 8 and 11 have more blue dots than other fields?

In 2012, fields 8 and 11 were amended with "granitestone" – a mined aggregate from Ironton, Missouri. EPA's equipment is so sensitive that it detects even small variations in gamma readings given off by different soil types.

12. Why was EPA's assessment better or more valid than the citizen's effort using the Gamma Pal?

EPA's assessment was performed by trained professional scientists in accordance with an approved quality assurance project plan. EPA's assessment included the collection of nearly 60,000 measurements at BMAC and at two reference locations for comparison. In addition, EPA performed statistical analysis of the screening results and collected more than 100 soil samples for laboratory analysis. The lab data will be used to verify and augment the screening results.